

**Spring 2019 - MARS 6910**

## **Marine Protected Area Design and Evaluation**



This one-credit seminar will focus on the theory and practice of Marine Protected Area (MPA) design, within the context of oceanic conservation. Students will critically discuss examples from diverse geographic areas published in the conservation and policy literature.

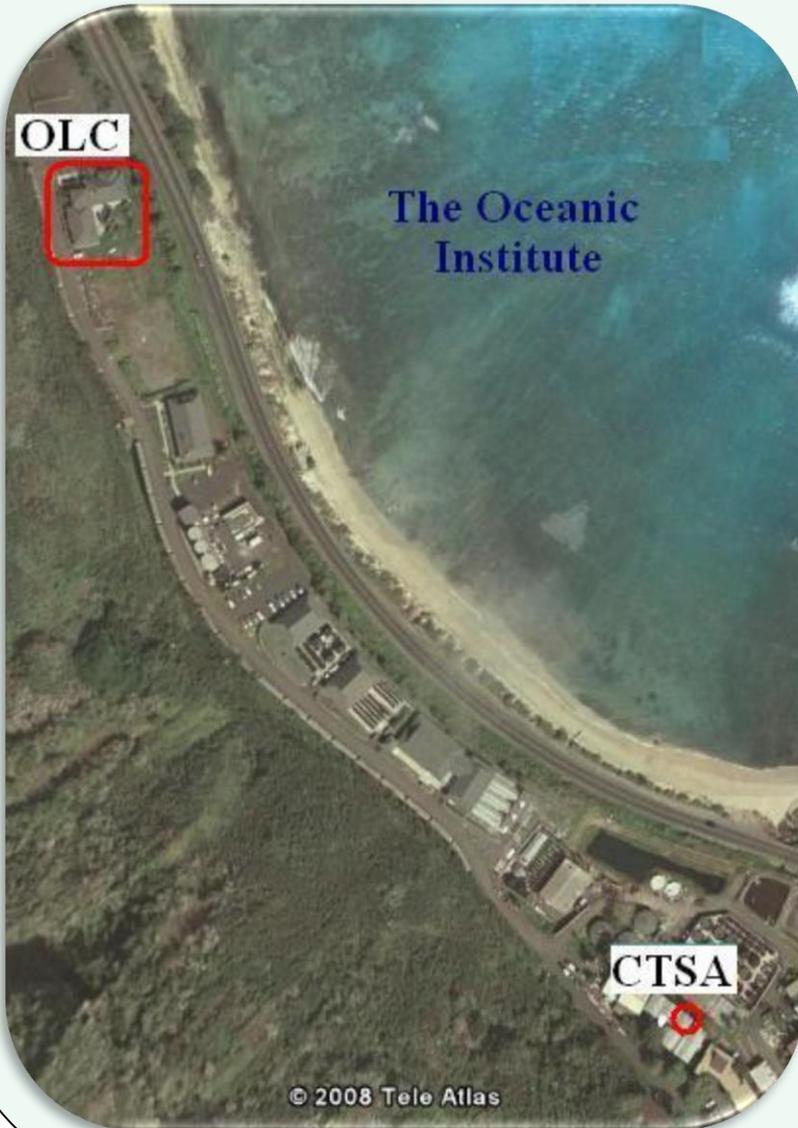
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**Thurs (R) , 10:45 - 11:45, AC 210 (HLC)**

**Graduate Students, 1 Credit, P / F Grade,**

**Instructor: David Hyrenbach (khyrenbach@hpu.edu)**

# ANNOUNCEMENTS Spring 2019



## *Office:*

CTSA Building #1

Oceanic Institute

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## *Office Hours:*

Mon; 11-13 @ HLC 2<sup>nd</sup> floor lanai

Tue; 11-13 @ HLC 2<sup>nd</sup> floor lanai

Or by appointment ...

# Course Web-Site

Spring 2019 - MARS 6910

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MARS 6910

Web-Page

*Last Updated January 2, 2019*

Please report any problems here:

[khyrenbach \(at\) hpu \(dot\) edu](mailto:khyrenbach@hpu.edu)

Syllabus

(Version: 01/09)

Schedule

March 5 - NO CLASS

Instructor

Dr. David Hyrenbach

Office:

CTSA # 1, Oceanic Institute

*Office Hours:*

M; 11:00 - 13:00 (HLC, 2nd floor lanai)

Tu; 11:00 - 13:00 (HLC, 2nd floor lanai)

or by appointment at CTSA #1, OI

[www.pelagicos.net](http://www.pelagicos.net)

[/classes\\_current\\_topics\\_sp2019.htm](#)

Link accessible through Blackboard

# Grades ?

- This class is Pass / Fail

|               |  |
|---------------|--|
| Presentation  | 30% (2 discussion lead; up to 15 points) |
| Participation | 70% (14 meetings; up to 5 points)        |

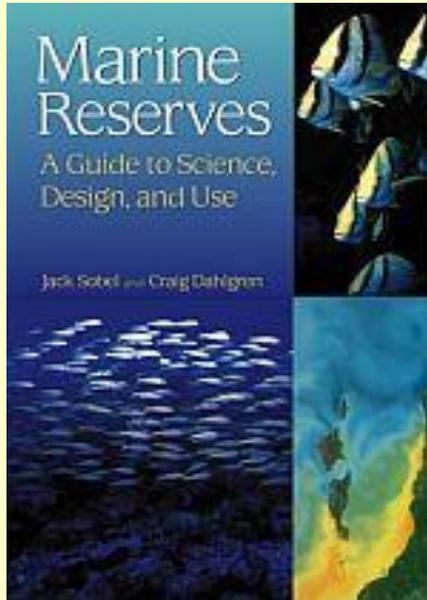
## NOTE:

Seminar leads will stimulate discussion - using handouts, ppt, whiteboard - but will NOT recite paper to class

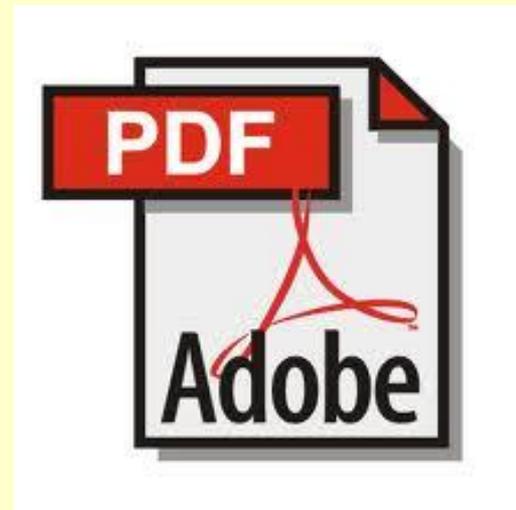
- Students with more than 4 absences, documented or undocumented, will be dropped from the course.

# What's the Plan ?

We will read and discuss the scientific literature



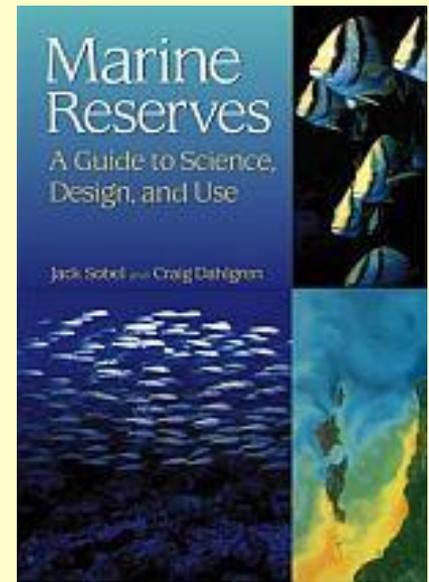
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E-book link in HPU Library:

<http://site.ebrary.com/lib/hpu/Doc?id=10196534>

# This Week



Chapter 1: Sobel & Dahlgren (2004)

MARINE PROTECTED AREA NOMENCLATURE:  
SPEAKING A COMMON LANGUAGE ?

Marine Protected Area (MPA):

Marine Reserve (MR):

# Protected Area Categories



<https://www.iucn.org/theme/protected-areas/about/protected-area-categories>

The IUCN has developed the protected area management categories system to define, record, and classify the wide variety of specific aims and concerns when categorizing protected areas and their objectives.

This method is recognized globally by national governments and international bodies such as United Nations Environmental Program (UNEP) and Convention on Biological Diversity (CBD)

# Category IA - Strict Nature Reserve



An area protected from all but light human use in order to preserve the geological and geomorphical features of the region and its biodiversity. Often target dense native ecosystems that are restricted from all human disturbance outside of scientific study, environmental monitoring and education.

Because they are so strictly protected, they provide ideal pristine environments by which external human influence can be measured.

If perpetual intervention is required to maintain these areas, the area will be category IV or V.

## Category IB - Wilderness Area

Similar to IA, but generally larger and protected in a slightly less stringent manner.

These areas are a protected domain in which biodiversity and ecosystem processes are allowed to flourish or experience restoration if previously disturbed by human activity. These areas may buffer against climate change and protect threatened species and ecological communities.

Devoid of modern infrastructure, though they allow human activity to the level of sustaining indigenous groups and their cultural and spiritual values within their wilderness-based lifestyles.

# Category IB - Wilderness Area



Serengeti National Park, Tanzania

## Category II - National Park

Similar to a wilderness area in size and main objective of protecting functioning ecosystems. However, national parks tend to be more lenient with human visitation and its supporting infrastructure.

National parks are managed in a way that may contribute to local economies through educational and recreational tourism on a scale that does not reduce the effectiveness of conservation efforts.

Surrounding areas of a national park may allow consumptive or non-consumptive use, but should nevertheless act as a barrier for defense of the protected area's native species and communities.

# Category II - National Parks



Yellowstone National Park, U.S.

## Category III - National Monument



A comparatively smaller area allocated to protect a natural monument and surrounding habitats.

The protected area could include natural geological or geomorphological features, culturally-influenced natural features, natural cultural sites, or cultural sites with associated ecology.

The classification then falls into two subcategories: those in which the biodiversity is uniquely related to the conditions of the natural feature and those in which the current levels of biodiversity are dependent on the presence of the sacred sites that have created an essentially modified ecosystem.

# Category III - National Monument



Bears Ears National Monument, U.S.

# Category IV - Habitat / Species Management Area



Similar to a natural monument, but focuses on more specific areas of conservation, like an identifiable species or habitat requiring continuous protection.

These protected areas are managed to ensure the maintenance, conservation, and restoration of particular species and habitats, and public education of such areas is widely encouraged as part of the management objectives.

Habitat or species management areas may exist as a fraction of a wider ecosystem or protected area and may require varying levels of active protection.

# Category IV - Habitat / Species Management Area



The Galápagos, Ecuador, is managed under category IV to preserve the islands' native flora and fauna

# Category V - Protected Landscape / Seascape Area



Covers an entire body of land or ocean with an explicit natural conservation plan, but usually also accommodates a range of for-profit activities. Category V is one of the more flexible classifications of protected areas.

The main objective is to safeguard regions with distinct and valuable ecological, biological, cultural, or scenic character. In contrast with previous categories, Category V permits surrounding communities to interact more with the area, contributing to the area's sustainable management and engaging with its natural and cultural heritage.

# Category V - Landscape / Seascape Management Area



Apo Islands Seascape, Philippines

# Category V - Protected Area with sustainable use of natural resources



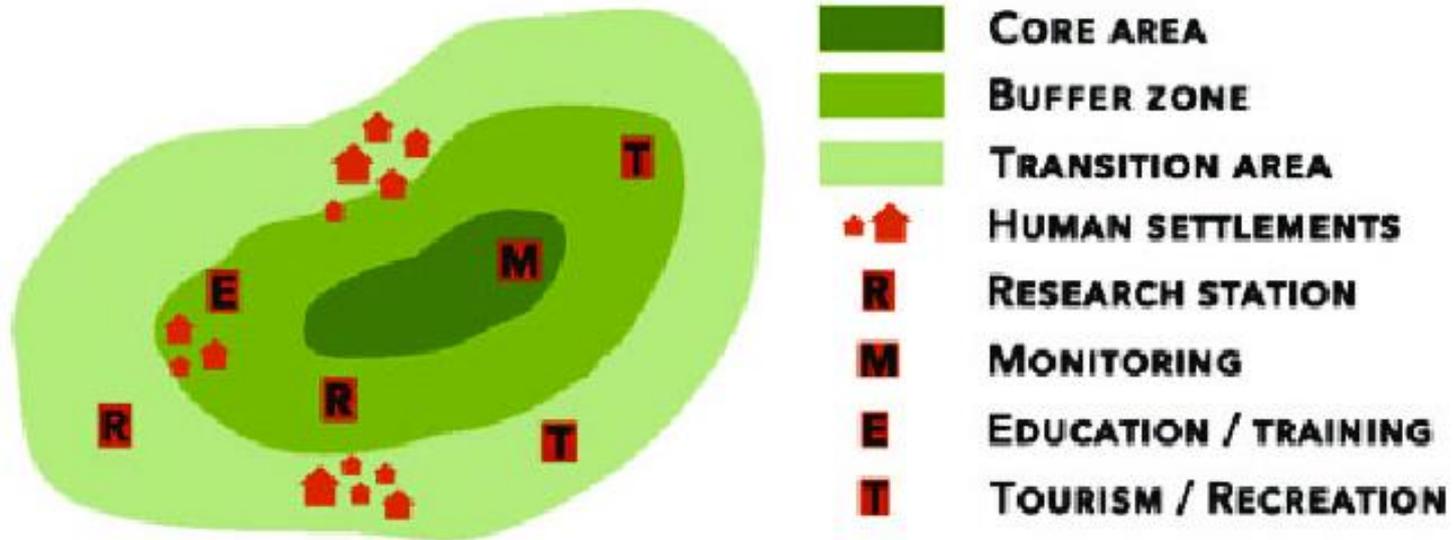
Though human involvement is a large factor in the management of these protected areas, development are not intended to allow for widescale industrial production. The IUCN recommends that a proportion of the land mass remains in its natural condition.

Category VI may be particularly suitable to vast areas that already have a low level of human occupation or in which local communities and their traditional practices have had little permanent impact on the environmental health of the region.

# Category V - Protected Area with sustainable use of natural resources



## BIOSPHERE AREA ZONATION



Biosphere Reserve Concept



# Definition - Marine Protected Area

- *Marine protected area (MPA) = "Any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment." (Kelleher 1999)*
- This definition, originally adopted by the World Conservation Union (IUCN) is widely used and accepted; but was modified in U.S.

# Definition - U.S. MPAs

- In the U.S. Executive Order 13158 from 2000 defines MPAs as:

*"Any area of the marine environment that has been reserved by Federal, State, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein"*

**(U.S. Federal Register 2000)**

# Definition - Marine Reserve

- *Marine "no-take" reserve = "An area of the sea in which all consumptive or extractive uses, including fishing, are effectively prohibited and other human interference is minimized to the extent practicable"*
- NOTE: The term "**marine reserve**" refers to MPAs established for ecological reasons:
  - to protect species and their habitats
  - to facilitate ecosystem-based management

# Fraction of Ocean Protected as Marine Reserves (MRs) and Marine Protected Areas (MPAs)



< 0.5% of the ocean in MPAs

< 0.0001 % protected from all extraction

(Roberts & Hawkins 2000)

# Definition - Marine Wilderness

- *Marine Wilderness = "An area of the sea, along with coastal land where appropriate, that has been protected to preserve or restore its natural character, condition, vistas, living communities, and habitats for present and future generations to enjoy, experience, explore, and study, but leave unaltered."*

# Implementation - Marine Wilderness

- *Ocean wilderness areas are large, generally at least 100 square miles, closed to all extractive activities, including all forms of fishing, and to other damaging human activities as needed to ensure the natural communities within flourish, as much as possible unaffected by human activities.*

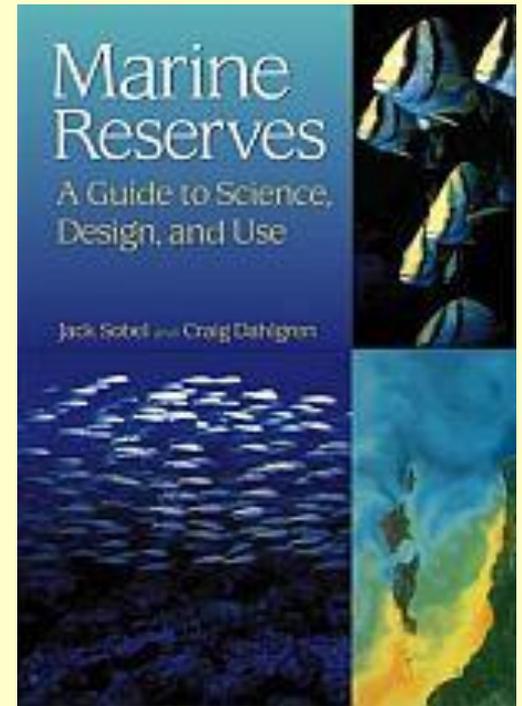
(The Ocean Conservancy 2001)

# Tentative Schedule

| <b>Date</b>   | <b>Lead</b>     | <b>Topic</b>        | <b>Assignment(s)</b> |
|---------------|-----------------|---------------------|----------------------|
| <b>1 / 15</b> | <b>David</b>    | <b>Introduction</b> |                      |
| <b>1 / 22</b> |                 |                     |                      |
| <b>1 / 29</b> |                 |                     |                      |
| <b>2 / 5</b>  |                 |                     |                      |
| <b>2 / 12</b> |                 |                     |                      |
| <b>2 / 19</b> |                 |                     |                      |
| <b>2 / 26</b> |                 |                     |                      |
| <b>3 / 5</b>  | <b>NO CLASS</b> | <b>SPRING BREAK</b> | <b>NO READINGS</b>   |
| <b>3 / 12</b> |                 |                     |                      |
| <b>3 / 19</b> |                 |                     |                      |
| <b>3 / 26</b> | <b>NO CLASS</b> | <b>HPU HOLIDAY</b>  | <b>NO READINGS</b>   |
| <b>4 / 2</b>  |                 |                     |                      |
| <b>4 / 9</b>  |                 |                     |                      |
| <b>4 / 16</b> |                 |                     |                      |
| <b>4 / 23</b> |                 |                     |                      |
| <b>4 / 30</b> |                 |                     |                      |

# Next Weeks

Chapter from Sobel & Dahlgren (2004),  
augmented with another relevant article



[globaloceanrefuge.org/](http://globaloceanrefuge.org/)

[mpatlas.org/](http://mpatlas.org/)

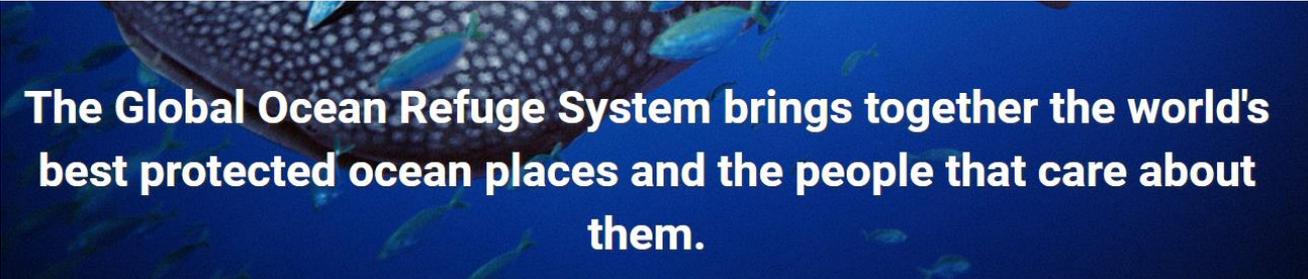
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